

<Review>

## Traditional Medicine in Korea : The Past and the Present<sup>§</sup>

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**Abstract** – The Korean peninsula, located between the vast Chinese mainland and Japan, has a unique cultural background that goes back five thousand years. In ancient times, the region was deeply influenced by Chinese culture, and traditional medicine in Korea was no exception. The Korean character, HAN GUL (24 alphabets), was invented at in the early 1400s by The Great King Sejong (1397-1450) of the Chosun dynasty. But few changes were made to traditional medicines for about 500 years thereafter. At the start of the 20th century, missionaries from western countries introduced new concepts and techniques of medicine. During the last century, there was enormous development in modern medical sciences. Even today, however, natural medicine -including folk medicine (or traditional Chinese medicine) - plays an important role in Korean health care. In this paper, we will review and discuss traditional Korean medicines as it has evolved over the past three thousand years.

**Keywords** – Traditional medicine, Crude drugs, Ethno-pharmacy (medicine).

### Introduction

From the beginning of human existence, every culture and people on earth used natural crude resources such as the herbs, leaves, barks, roots, flowers and minerals as medicines. Then, two hundred years ago, a young German pharmacist named Friedrich Wilhelm Serturmer isolated a substance from the opium that he named “Morphine”, after *Morpheus*, the Roman god of pleasant sleep and sweet dreams. After this historical event in 1803, chemical ingredients were rapidly developed from natural drugs by virtue of scientific advancement.

Today, nearly 50% of all drugs on the market are natural products or natural product derived (Puglisi and Swaffar, 2003). And the list of crude drugs with known medicinal properties includes 5,767 in the Chinese Materia Medica (CMM, 1997), 2,500 in India, at least 800 regularly collected from the tropical forests of Africa, almost 300 currently detailed for the medical profession in Germany (Ody, 1993).

In Korea, a total of 514 crude natural drugs are officially recognized as having medicinal value by the government. That is 131 kinds in Korean Pharmacopoeia (K.P. VIII, 2002) and 383 kinds in Korean Herbal Pharmacopoeia (K.H.P., 2002).

### Historical Review in Brief

**1121 BC-89 BC, IN VERY ANCIENT KOREA** – Regional natural products were used together with incantation for the treatment of disease. Individuals applied lard to the skin to protect it from frostbite during the winter.

(cf., **ABOUT 1000 BC IN CHINA**) – More than 50 kinds of medicinal plants were recorded in the classic book of ode, *Shi Jing*, which was written in 771 BC (Gongfu, 1989).

**14 BC-AD 876, IN ANCIENT KOREA** – Developing foreign trade introduced strange natural drugs to Korea, mainly from China. Treating disease continued to be very much dominated by the basic philosophy of the “*Yin & Yang*”, which stated that these must be in good balance and that the “*Five Elements*” must be harmonized to maintain human health. (*Yin*: moon, earth, female, cold, dark, shadow, negative, etc.; *Yang*: sun, heaven, male, hot, bright, light, positive, etc.; *Five Elements*: Metal, Water, Wood, Fire, Earth).

(cf., **THESE PERIODS IN CHINA**) – The earliest monograph of Materia Medica in China, *Shen Nong Ben Cao Jing* (*Shen Nong Pen Tsao Ching*, *Shen Nong's Canon of Herbs*), was published during this period (22-250) by an unknown scholar. *Shen Nong* is a mythological emperor said to have ruled China around 2770 BC. He is similar to the Sun-God *Apollo* in Greek myth (Photo). His head appeared like that of an ox, and he tasted 100 plants a

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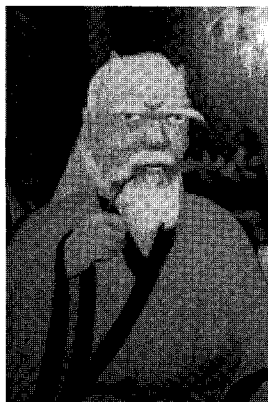
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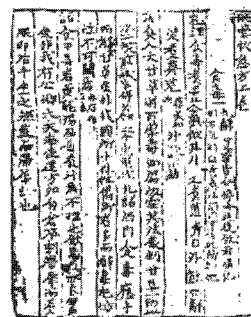
day so that he could teach people which were toxic and which were good for a person's health. This book listed 365 kinds of natural drugs according to the 3-grade classification shown in Table 1.

Shortly after these periods in TANG Dynasty (659), the first Chinese pharmacopoeia, *Xin Xiu Ben Cao* meaning newly revised canon of Materia Medica was published. It included 844 herbal drugs.

**900-1400, DURING THE COREA & CHOSUN DYNASTY; FLOWERING PERIOD OF ETHNO-MEDICINE** – *Hyang Yak Gu Kup Bang* is the oldest book of medicine published in Korea (see the sample copy of the book). This book was published between 1236-1251 and listed 170 kinds of native domestic herbal medicines (Han *et al.*, 2003). About these drugs, their properties are described in terms of “5 Tastes” which include acidity, bitterness, sweetness, acidity, and salinity, as



well as “4 Ki” which is energy or natural passion in universe. The four Ki include warm, cool, cold, and hot. This volume also documents methods of collection and preparation, as well as toxicity, activities and indications. Some of the crude drugs recorded in this book are summarized in Table 2.



*Hyang Yak Gyp Sung Bang* (85 volumes) was published in 1433. This book is a small letter wood-block press printing (xylography) covering about 687 kinds of native herbal medicine. Years later, Japanese scholar's hand copying 30 volumes were born.

Civilizations including herbal medicine evolved slowly. The Korean character (*HAN GUL*, 24 alphabets) was invented at in the early of 1400s by *The Great King Sejong* (1397-1450) of the *Chosun* dynasty. And naturally followed many new inventions for the peoples daily life. But few changes were made to traditional medicines for about 500 years thereafter.

**Table 1.** The Three Grade Classification in *Shen Nong Ben Cao Jing*

Grade	High (or Top)	Middle	Low
Status	King	Minister	Servant
Nature	Heaven	Human	Earth
No. of Drugs	120	120	125
Characteristics	Nonpoisonous	Toxic or Nontoxic	Very toxic
Role	Lightening body & Prolongation of life	Harmonizing	Attack disease
Drugs, e.g.	Ginseng Radix Eucommiae Cortex Astragali Radix Lycii Fructus Zizyphi Fructus Schizandrae Fructus Polygalae Radix Moschus Bezoar Bovis Mercury (Cinnabaris) Talcum(MgO SiO <sub>2</sub> )	Angelicae Radix Evodiae Fructus Scutellariae Radix Paeoniae Radix Puerariae Radix	Rhei Rhizoma Aconiti Tuber Tiglii Semen Pinelliae Tuber Aspidium Armeniacae Semen Scopoliae Rhizoma Scolopendrae Corpus

(cf.: Roman age. *De Materia Medica* by Dioscorides in AD 77)

**Table 2.** Some Examples of Natural Herbal Drugs in *Hyang Yak Gu Kup Bang*

Ginseng Radix ( <i>Panax ginseng</i> ), Lycii Fructus ( <i>Lycium chinense</i> ), Corni Fructus ( <i>Cornus officinalis</i> ), Platycodi Radix ( <i>Platycodon grandiflorum</i> ), Allii Bulbus ( <i>Allium sativum</i> ), Menthae Herba ( <i>Mentha arvensis</i> ), Schizonepetae Herba ( <i>Schizonepeta tenuifolia</i> ), *Fel Ursi (Bear, <i>Ursus arctos</i> bile), *Haliotidis Concha (Shell of Abalone, <i>Haliotis gigantea</i> ),	Achyranthis Radix ( <i>Achyranthes bidentata</i> ), Angelicae Gigantis Radix ( <i>Angelica gigas</i> ), Foeniculi Fructus ( <i>Foeniculum vulgare</i> ), Ponciri Fructus ( <i>Poncirus trifoliata</i> ), Perillae Herba ( <i>Perilla frutescens</i> ), Bupleuri Radix ( <i>Bupleurum falcatum</i> ), Acanthopanacis Cortex ( <i>Acanthopanax sessiliflorum</i> ), *Bezoar Bovis (gallstone from <i>Bos taurus</i> ),
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(\* , animal origins)

(cf., **THESE PERIODS IN CHINA**) – *Ben Cao Gang Mu* (*Pen Tsao Kang Mu*), a compendium of Materia Medica was published during 1578-1590 by Lee S.J. (1518-1593) in the *Ming* Dynasty. This famous book contains 1,894 drugs, 1,160 pictures, and 11,096 recipes. It adopted a new system of natural classification using “*Gang & Mu*” (i.e., water, fire, earth, mineral, herb, grain, vegetable, fruit, wood, cloth, insects, fish, shell, animal, bird, human). Today, this book has been translated into different languages in many countries (Gongfu, 1989; Han *et al.*, 2003).

**1600-1900, DURING THE CHOSUN DYNASTY (KOREA)** – The most famous book of oriental medicine *Dong E Bo Gam* (meaning a Treasury of Oriental Medicine), which was composed of 23 volumes, was published in 1611 by the royal Doctor Huh Jun (1546-1615). Later on, xylographics of this book were made both in China and Japan.

The herbal medicine market opened in Daegu in 1658 by the royal order (King *Hyojong* 9). Even today, after 350 years of operations, more than 300 kinds of natural drugs are sold every day at this particular market (Photo below: Herbal market in Daegu).

In 1884, *Bang Yak Hap Pyun*, a compendium of herbal drug recipes, was published by Hwang D.Y. (1807-1884). This book is still quite popular among specialists in oriental medicine.



**1886-1910, THE DAWNING OF THE OCCIDENTAL MEDICINE AND THE MODERN PHARMACY** – In 1886 a missionary named Dr. Annie J. Ellers opened a gynecological clinic and started to teach occidental medicine in Seoul. Two years later Dr. Lillias S. Horton joined the clinic. In 1896, the first Korean doctor, Dr. Suh Jae Pil received a medical license from George Washington University. The first pure chemical drug, quinine, was advertised in public newspapers in this same year. In 1897, the first pharmaceutical company, Dong Wha, was established as a manufacturer of digestive drinks. The first graduation from the Medical School was in 1902 and licensed 28 MD. And the first modern pharmacy school was opened in 1910.

**1910-1960, CHAOTIC AND JEOPARDOUS ERA IN KOREA** – Korean peninsula was occupied and ruled by the Japanese army from 1910 to 1945. Shortly after it regains its independence, war explodes in 1950 and ends in 1953 as an armistice. As a result, this half century was really chaotic and jeopardous era.

**1990-2003, TOO MUCH EMPHASIS ON ORIENTAL MEDICINE AND ORIENTAL TRADITIONAL PHARMACY** – Today, in addition to modern medicine and pharmacy education, there are 11 colleges of oriental medicine and 3 colleges (departments) of oriental pharmacy at the universities in Korea. The system is influenced by too many political considerations.

### IMPORTING CRUDE DRUGS IN RECENT YEAR

Korea is an important market for natural drugs commerce

**Table 3.** Crude Drug Imports in Korea in 1996

Country	Amounts (US\$)	Crude Drugs
China	41,015,758	Glycyrrhizae Radix, Cinnamomi Cortex, Cervi Cornu, Cervi Parvum Cornu, Amomi Semen, Scolopendrae Corpus, Longanae Arillus, Rehmanniae Radix, Polygonati Rhizoma, etc.
New Zealand	21,541,850	Cervi Cornu, Cervi Parvum Cornu
USSR	7,991,750	Glycyrrhizae Radix, Cervi Cornu, Cervi Parvum Cornu
Vietnam	7,756,923	Glycyrrhizae Radix, Cinnamomi Cortex, Amomi Semen, Longanae Arillus, Achyranthis Radix, Cinnamomi Cortex,
Brazil	7,219,200	Bezoar
North Korea	5,307,965	Cassiae Semen, Cervi Parvum Cornu, Atractylodis Rhizoma, Atractylodis Rhizoma Alba, Hoelen, Rehmanniae Radix, Moutan Cortex, Pinelliae Tuber, Bombycis Corpus, Rubi Fructus, Schizandrae Fructus
Laos	4,496,529	Longanae Arillus, Puerariae Radix, Amomi Semen, Aurantii Nobilis Pericarpium,
Cambodia	3,655,000	Amomi Semen, Moschus, Fel Ursi
Thailand	3,229,262	Amomi Semen, Longanae Arillus,
Canada	2,991,435	Cervi Parvum Cornu
Other 23 countries	9,186,934	Etc., etc.
Total	114,392,606.	

(Baek W.S., 1997)

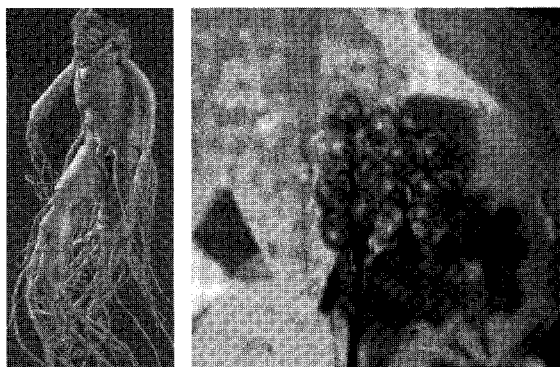
in the world. Table 3 shows its major trading partner countries, with trade amounts in US\$ and the names of crude drugs traded.

### TEN MAJOR NATURAL DRUGS CULTIVATED IN KOREA

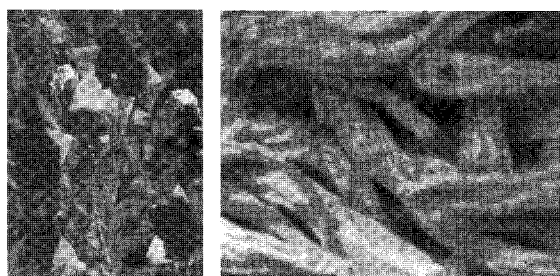
As mentioned previously, more than 33 countries export crude drugs to Korea (Table 3). Cultivating medicinal plants is not so common in this country, but some plants as describing below are particularly important drug resources.

**GINSENG RADIX**, (*Panax ginseng* Meyer or *P. schinseng* Nees, Araliaceae), Ginseng.

Activities (major)-Adaptogen; Tonic; etc. (Dewick, 1999; Duke. *et al.*, 2002; Han *et al.*, 2003). Not an Aphrodisiac. (cf., American ginseng: *P. quinquefolius*; Siberian ginseng: *Eleutherococcus senticosus*; Japanese ginseng: *P. japonicus*; Chinese ginseng: *P. notoginseng*)

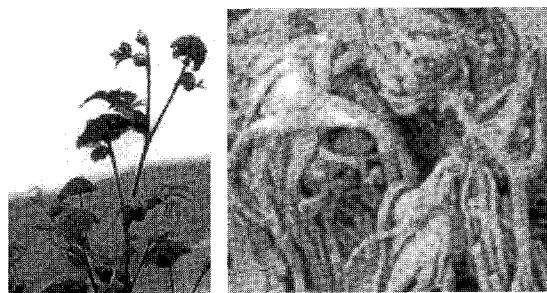


**PLATYCODI RADIX**, (*Platycodon grandiflorum*, Campanulaceae), Balloon Flower. Activities (major)-Antiasthmatic; Analgesic; Antiinflammatory; etc. (Duke *et al.*, 2002; Han *et al.*, 2003). (Photo from Bae, 2000).

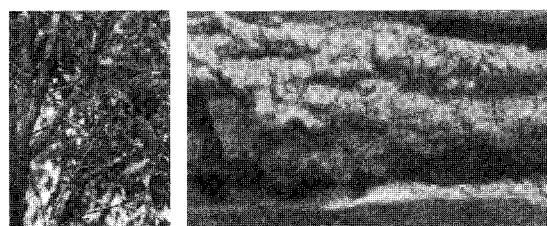


**ANGELICAE GIGANTIS RADIX**, (*Angelica gigas*, Umbelliferae), Dong Quai. (cf., Japanese angelica: *A. acutiloba*; Chinese : *A. sinensis*; European : *A. officinalis*)

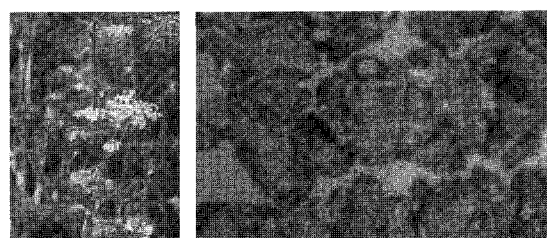
Activities (major)-Alterative; Antianemic; Antiinflammatory; Antiaggregant; Emmenagogue; etc. (Duke *et al.*, 2002; Han *et al.*, 2003).



**EUCOMMIAE CORTEX**, (*Eucommia ulmoides*, Eucommiaceae), Du Zhong, Activities (major) - Antiaging; Analgesic; Antiinflammatory; Sedative; etc. (Duke *et al.*, 2002; Han *et al.*, 2003). (Photo from Bae, 2000).



**CNIDIUM RHIZOMA**, (*Cnidium officinale*, Umbelliferae). Activities (major)-Alterative; Antianemic; Antiaggregant; etc. (Han *et al.*, 2003). (Photo from Bae, 2000).



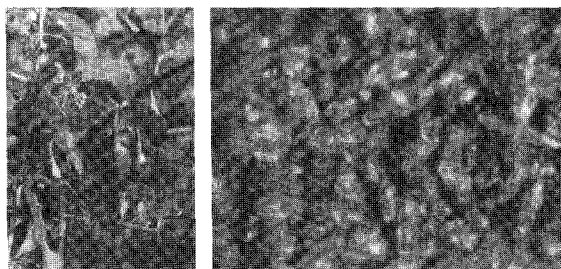
**PAEONIAE RADIX**, (*Paeonia albiflora*, Paeoniaceae), Peony.

Activities (major)-Analgesic; Antiaging; Antiaggregant; Anti-inflammatory; Sedative; Uterocontractant; etc. (Duke *et al.*, 2002; Han *et al.*, 2003). (Photo from Bae, 2000).



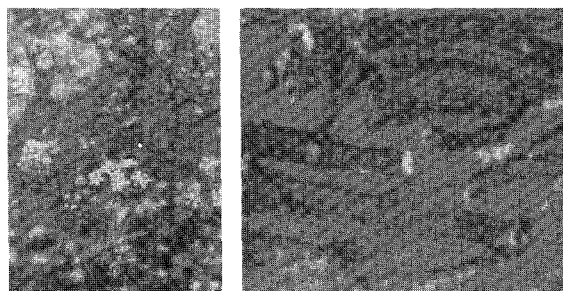
**LYCII FRUCTUS**, (*Lycium chinense*, Solanaceae), Wolfberry.

Activities (major)-Antiaging; Hepatotonic; Tonic; etc. (Duke *et al.*, 2002; Han *et al.*, 2003). (Photo from Bae, 2000).



**BUPLEURI RADIX**, (*Bupleurum falcatum* or *B. chinense*, Umbelliferae), Hare's Ear

Activities (major)-Analgesic; Antiaggregant; Antiedemic; etc. (Duke *et al.*, 2002; Han *et al.*, 2003). (Photo from Bae, 2000).



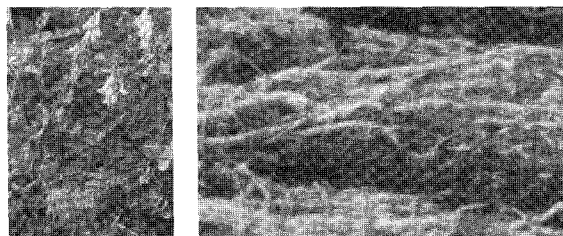
**DIOSCOREAE RHIZOMA**, (*Dioscorea batatas*, Dioscoreaceae), Chinese Yam

Activities (major) - Antioxidant; Tonic; etc. (Duke *et al.*, 2002; Han *et al.*, 2003). (Photo from Bae, 2000).



**ASTRAGALI RADIX**, (*Astragalus membranaeaeus*, Leguminosae), Huang Qi.

Activities (major)-Adaptogen; Antifatigue; Antiinflammatory; Antioxidant; Tonic; etc. (Duke *et al.*, 2002; Han *et al.*, 2003). (Photo from Bae, 2000).



## CONCLUSION

The world health organization has estimated that at least 80% of the world's population relies mainly on natural medicines. Even in industrialized countries, up to 40% of all pharmaceuticals are derived from natural sources (Polunin and Robbins, 1992). Many drugs are made with natural ingredients, and others are either synthetic copies or artificially modified forms of natural chemicals.

Consequently, we have to try our best not only to conserve (or preserve) natural resources, but also to find and develop new potent drugs from our nature all around the world.

## REFERENCES

- Bae, K., in *The Medicinal Plants of Korea*, Kyo-Hak Publishing Co, Seoul (2000).
- Baek, W. S., *Proceedings, Symposium on the usage and verification of medicinal herbs*, p.17, Nov. 20, Seoul (1997).
- CMM, *Chinese Materia Medica*, Shanghai Science Publication, Seoul, Shanghai, Tokyo (1997).
- Dewick, P. M., *Medicinal Natural Products*. John Wiley & Son Inc, New York (1999).
- Duke, J. A., Bogenschutz-Godwin, M.J., Cellier, J. and Duke, P.A.K., *Handbook of Medicinal Herbs*. CRC Press, Boca Raton, Florida (2002).
- Gongfu, Y., *The History of Medicinal Plants in China; Proceedings, 2nd International Symposium on Recent Advances in Natural Products Research*, pp.520-524, Oct. 12-14, Seoul (1989).
- Han, D. R. *et al.*, *Modern Pharmacognosy*. (A Korean Textbook), Seoul (2003).
- Huh Jun (1546-1615), *Dong E Bo Gam*, (1611).
- Hwang D.Y. (1807-1884), *Bang Yak Hap Pyun*, Namsan Dang, Seoul (2000).
- KHP, *Korean Herbal Pharmacopoeia*. Korea FDA, Seoul (2002).
- KP, VIII, *Korean Pharmacopoeia*, VIII. Korea FDA, Seoul (2002).
- Ody, P., *The Complete Medicinal Herbal*. Dorling Kindersley Book, New York (1993).
- Polunin, M. and Robbins, C., *The Natural Pharmacy*. Macmillan Publishing Company, New York (1992).
- Puglisi, M. and Swaffar, D., in *News Letter*, The American Society of Pharmacognosy, **39**, 2, 7 (2003).

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